compliance-sensitive. **CONCLUSIONS:** Adhering to GOLD guidelines, apart from having patients treated appropriately, National/Regional Healthcare Systems could save significant resources and re-allocate them in more rational manner.

PRS44

EFFECTIVENESS AND EFFICIENCY OF ME-TOO LISTS AS ILLUSTRATED BY THE EXAMPLE OF INTRANASAL STEROIDS

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OBJECTIVES: A me-too list has been implemented in a German KV (regional association of SHI-accredited physicians) with the intention of promoting cost-effective prescribing behavior. The aim was to investigate whether the me-too list is an effective steering tool. a mometasone-containing nasal spray (MHN) which has been listed as a me-too, should be substituted by budesonide-containing nasal sprays (BHN), because MHN therapy is assumed to be equally effective but more cost intensive than BHN. MHN's market share has declined after listing. **METHODS:** A retrospective study of anonymized patient data was conducted from March to April 2009 in KV North Rhine. ENT physicians documented patients which had received MHN for minimum 12 months and who had then been switched to another intranasal steroid (INS). Evaluation was done with descriptive statistics. **RESULTS:** A total of 676 patients documented by 76 physicians were eligible for the analysis. a total of 189 patients (28%) received MHN only; a switch to other INS was documented for 487 patients (72%). ENTs cited economic reasons for changing the INS in 86.4% of the cases. Compared to other INS, the average number of consultations for MHN treatment and the administered dose of MHN, regardless of diagnosis, were lower, MHN patients required refill prescriptions later, less co medication, and MHN generated lower daily treatment costs in real-life. **CONCLUSIONS:** Reasons for switching from MHN were economically. Therefore the me-too list has a heavy impact on prescription behavior. Daily treatment costs of MHN were lower in real-life. Analysis based on PDD (prescribed daily doses) showed that the economic effect of switching a patient to another INS was far less than expected. For instance it was offset by a higher number of consultations in association with the cheaper alternatives in more frequent use. An economic evaluation with a precise quantification would be of major interest in future.

PRS45

OPTIMIZATION OF GUIDELINES' SUSTAINABILITY BY EVALUATING FACTORS PREDICTING TREATMENT RESPONSE IN PATIENTS WITH ALLERGIC RHINITIS

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OBJECTIVES: To assess predictive factors and risk profiles for treatment response in patients with allergic rhinitis. It was the aim to create a platform giving support to the development of interventions optimizing the daily use as well as the sustainability of the existing national and international guidelines and therewith minimizing the progression to severe chronic upper airway diseases. **METHODS:** For this purpose, 76,981 case reports of patients with allergic rhinitis from ten post-marketing-studies in Germany were aggregated by the use of an IPD meta-analysis. The data pool was examined in terms of significant predictive factors by univariat methods, logistic regression and discriminant analysis. The predictive ability of the model was assessed by a 10 fold crossvalidation. **RESULTS:** First, we investigated the data pool as a whole, and the results showed that 20.6% of the patients did not respond to their therapy. Especially patients who were treated according to current guidelines had a higher risk of non-response (28% vs. 19.3%). Next, we examined the data pool in terms of significant predictive factors resulting in non-response of patients receiving an adequate guideline-conform therapy. The primary baseline determinants were a positive history of allergy in the family, duration and severity of disease, the periodicity of an allergen (perennial allergens) and concomitant diseases. Especially patients with asthma as well as patients suffering from more than one concomitant disease had a higher risk of non-response (32.4% and 34%). The main follow up determinants were patient's compliance, safety and the treatment process. a total of 63.4% of patients with a poor compliance, which was enforced by an inadequate safety were non-responder. **CONCLUSIONS:** These results support the findings of current clinical trials describing a non-responder rate of about 20% and encourage efforts to optimize guidelines as well as to achieve a sustainability of guidelines.

RESPIRATORY-RELATED DISORDERS – Conceptual Papers & Research on Methods

PRS46

ADJUSTING FOR CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD) SEVERITY IN DATABASE RESEARCH: FEASIBILITY OF DEVELOPING AND VALIDATING AN ALGORITHM

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OBJECTIVES: When comparing interventions through routine database research, it is important to adjust for COPD severity. GOLD guidelines grade COPD severity according to lung function (FEV_1% predicted). Most databases lack data on lung function. Previous database research has approximated COPD severity using demographics and health care utilization. This study aims to derive an algorithm for COPD severity using baseline data from a large, respiratory trial (UPLIFT). **METHODS:** Several partial proportional odds logit models were used to estimate the probabilities of being in GOLD stages II, III and IV. The predicted GOLD stage for each patient was defined as the state with the highest predicted probability. The concordance between the predicted and the observed (according to lung function) stage was assessed with κ-statistics. Models were estimated in a random selection of 2/3 of all patients enrolled in Western Europe (n = 2439) and validated in the remaining patients (n = 1259). The final model was re-estimated in a subsample with a balanced distribution across severity stages. **RESULTS:** In the validation set, 47% were in stage II, 44% in III, and 9% in IV. In the final model, a higher risk of more severe COPD was associated with being male, younger, lower BMI, and certain medications (long-acting and short-acting bronchodilators, leukotriene modifiers, oral steroids), oxygen and having quit smoking. No relationship was found between severity and co-morbidities, previous health care resource use (e.g. emergency room, hospitalizations) and inhaled corticosteroids, xanthines, or mucolytics. The concordance between observed and predicted disease states was generally poor ($\kappa = 0.15$) and only slightly better in the balanced sample ($\kappa = 0.22$). **CONCLUSIONS:** Data from a well controlled trial setting indicated that COPD severity cannot be reliably predicted from demographics and health care use. This limitation should be considered when interpreting findings from database studies, and additional research should explore other methods allowing to account for COPD severity.

PRS47

USE OF PROPENSITY SCORE MATCHING, STANDARD REGRESSION ANALYSIS AND INSTRUMENTAL VARIABLE METHOD IN OUTCOMES RESEARCH STUDIES: A COMPARATIVE ANALYSIS

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OBJECTIVES: Propensity score matching and standard regression analysis are common ways to control for baseline differences between comparative groups. They control for observable factors. Instrumental variable approach controls not only for observable factors but also unobservable factors. We compared the three methods and showed that using more advanced techniques alters the estimated results in a significant way. **METHODS:** Using data from U.S. claims databases, the effect of treatment on total health care expenditures among asthma patients was estimated. Reimbursement amounts were dollars paid by the health plan to the provider including patient co-payments and deductibles. Doctors' prescribing patterns were used as an instrumental variable for treatment choice. Propensity score matching was employed using the nearest neighbor matching algorithm. Generalized linear model was used as an alternative risk adjustment technique. **RESULTS:** Patients treated with control medication were younger, more likely to live in the northeast and south of the United States and have a higher Charlson comorbidity score, Elixhauser score and chronic disease score relative to patients treated with reliever medication. The difference between one year health care costs for reliever and controller medication was $2,345 by propensity score matching, $2,195 by generalized linear model, and $2,997 by instrumental variable approach. The difference was statistically significant. **CONCLUSIONS:** After adjusting for patient clinical and demographic characteristics, controller medication was less costly than reliever medication. The choice of risk adjustment was important. The technique that controlled for both observed and unobserved biases (instrumental variable technique) provided a difference of almost 30% higher than the other techniques.

PRS48

COMPARISON OF ECONOMETRIC MODELS FOR ESTIMATING COST DIFFERENCES: OLS, GAMMA, AND QUANTILE REGRESSION

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OBJECTIVES: Estimation of cost differences between groups has been assessed using a variety of econometric techniques. Recent literature commonly uses ordinary least squares (OLS) with log transformed costs or generalized linear models with a log link function and gamma error distribution; however recommendations from the field of econometrics suggest that quantile regression models may provide more informative comparisons of health care cost data. The objective of this study was to compare three econometric models for estimating health care cost differences. **METHODS:** The econometric models were compared using a cross-sectional sample of patients hospitalized during 2007 for COPD exacerbations from Premier's Perspective Comparative Database, a population-based U.S. inpatient database. Admissions were classified into two groups according to the presence of pneumonia. Total inpatient cost was regressed on pneumonia status and confounders using: 1) OLS with log-transformed costs; 2) generalized linear models with log link and gamma error; and 3) quantile regression with comparisons at every 5^{th} percentile. Cost differences were calculated by subtracting model based estimated costs between COPD patients with and without pneumonia. **RESULTS:** There were 69,841 COPD exacerbation admissions. Of these, 69,286 admissions had nonzero costs, and 6,840 (9.9%) had evidence of pneumonia. In the OLS model, estimated costs were $3,949 (95%CI: $3,822–$4,076) higher in patients with pneumonia; in the log-gamma model, the estimated costs were $4,442 (95%CI: